

CLAIMS

What is claimed is:

1. A fiber optic control system comprising:
an illumination source for producing a light beam;
a plurality of optical fibers, each fiber arranged to receive a respective
portion of the light beam at a coupling end and to conduct the respective portion
5 of the light beam to an illumination end;
a planar light switch comprising a plurality of light attenuating pixels, the
light switch positioned between the illumination source and the optical fiber
coupling ends, each of the pixels being electronically controllable for selectively
coupling portions of the light beam to respective coupling ends of the optical
10 fibers; and
a plurality of light activated circuits, each circuit optically coupled to the
respective illumination end of the optical fiber and responsive to the respective
portion of the light beam radiated from the respective illumination end for
providing a control signal to a remotely located device.
- 15 2. The system of claim 1, further comprising a controller coupled to
the planar light switch for controlling a light attenuation property of each of the
pixels of the planar light switch.
3. The system of claim 1, wherein the light activated circuit further
comprises at least one of a phototransistor, a photo diode, or a photo resistor.
- 20 4. The system of claim 1, further comprising a lens positioned
between the illumination source and the planar light switch for directing the light
beam onto the planar light switch.
5. The system of claim 1, wherein at least one pixel of the planar light
switch is aligned with a respective coupling end of at least one optical fiber.

6. The system of claim 1, wherein the planar light switch is a liquid crystal display.

7. The system of claim 1, wherein the illumination source further comprises an electroluminescent light source.

5 8. The system of claim 1, wherein the illumination source further comprises a semiconductor light source.

9. The system of claim 8, wherein the semiconductor light source is a light emitting diode or a laser semiconductor.

10 10. The system of claim 8, wherein the semiconductor light source further comprises an array of semiconductor light sources

11. The system of claim 1, further comprising a heat shield mounted between the illumination source and the planar light switch for reducing heat transmitted from the illumination source to the planar light switch.

15 12. The system of claim 1, wherein the plurality of optical fibers are arranged in a two-dimensional array at respective coupling ends.

13. A method of controlling remote devices comprising:
directing a light beam at a first side of a selectively transmissive planar light switch;

20 allowing portions of the light beam to be transmitted through the switch onto respective coupling ends of a plurality of optical fibers positioned for receiving portions of the light beam at a second side of the switch; and

optically coupling respective illumination ends of the optical fibers to respective light activated circuits so that the portion of the light radiated from the illumination end activates the light activated circuit to control a remote device.

14. The method of claim 13, wherein the selectively transmissive planar light switch is a liquid crystal display.

15. The method of claim 13, wherein allowing portions of the light beam to be transmitted through the switch further comprises selectively controlling a light attenuation property of each of a plurality of pixels of the light switch.

16. The method of claim 13, further comprising aligning at least one pixel of the light switch with a respective coupling end of at least one optical fiber.

17. A fiber optic illumination system comprising:

an illumination source for producing a light beam;

10 a plurality of optical fibers, each fiber configured to receive a respective portion of a light beam at a coupling end and to radiate the respective portion of the light beam at an illumination end for illumination; and

a planar light switch comprising a plurality of light attenuating pixels, the light switch positioned between the illumination source and the optical fiber coupling ends, each of the pixels being electronically controllable for selectively coupling portions of the light beam to respective coupling ends of the optical fibers.